

(3) Have a minimum width between side rails of 12 inches (30.48 cm) for ladders 10 feet (3.05 m) in height. Width between rails shall increase at least ¼ inch (0.64 cm) for each additional 2 feet (0.61 m) of ladder length.

(e) *Maintenance and inspection.* (1) The employer shall maintain portable ladders in safe condition. Ladders with the following defects shall not be used and either shall be tagged as unusable if kept on the premises or shall be removed from the worksite:

- (i) Broken, split or missing rungs, cleats or steps;
- (ii) Broken or split side rails;
- (iii) Missing or loose bolts, rivets or fastenings;
- (iv) Defective ropes; or
- (v) Any other structural defect.

(2) Ladders shall be inspected for defects prior to each day's use, and after any occurrence, such as a fall, which could damage the ladder.

(f) *Ladder usage.* (1) Ladders made by fastening rungs or devices across a single rail are prohibited.

(2) Ladders shall not be used:

- (i) As guys, braces or skids; or
- (ii) As platforms, runways or scaffolds.

(3) Metal and wire-reinforced ladders with wooden side rails shall not be used when employees on the ladder might come into contact with energized electrical conductors.

(4) Individual sections from different multi-sectional ladders or two or more single straight ladders shall not be tied or fastened together to achieve additional length.

(5) Except for combination ladders, self-supporting ladders shall not be used as single straight ladders.

(6) Unless intended for cantilever operation, non-self-supporting ladders shall not be used to climb above the top support point.

(7) Ladders shall extend at least 36 inches (0.91 m) above the upper support level if employees are to leave or mount the ladder at that level, except that where such extension is impractical other equivalent means such as grab bars may be used to provide a hand grip.

(8) Ladders shall be securely positioned on a level and firm base.

(9) Ladders shall be fitted with slip-resistant bases and secured at top or bottom to prevent the ladder from slipping.

(10) The employer shall direct that ladders shall be placed so that employees climbing are not exposed to injury from projecting objects or doors that open toward the ladder.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40941, June 30, 2000]

#### § 1917.120 Fixed stairways.

(a) *Definition.* "Fixed stairway" means interior and exterior stairs serving machinery, tanks and equipment, and stairs to or from floors, platforms or pits. The term does not apply to stairs intended only for fire exit purposes, to articulated stairs (the angle of which changes with the rise and fall of the base support) or to stairs forming an integral part of machinery.

(b) *New installations.* (1) Fixed stairs installed after October 3, 1983 shall be positioned within the range of 30 degrees to 50 degrees to the horizontal with uniform riser height and tread width throughout each run and be capable of a minimum loading of 100 pounds per square foot (445 N) and a minimum concentrated load of 300 pounds (1,334 N) at the center of any treadspan. Riser height shall be from 6 to 7.5 inches (15.24 to 19.05 cm), stair width a minimum of 22 inches (55.88 cm) between vertical barriers, tread depth a minimum of 12±2 inches (30.48±5.08 cm), and tread nosing shall be straight leading edges.

(2) Stair landings shall be at least 20 inches (50.8 cm) in depth. Where doors or gates open on a stairway, a landing platform shall be provided. Door swing shall not reduce effective standing area on the landing to less than 18 inches (45.72 cm) in depth.

(3) Fixed stairs having four or more risers shall have stair railings or handrails complying with § 1917.112(c)(1).

(4) Railing height from tread surface at the riser face shall be 33±3 inches (83.82 cm ±7.62 cm).

(5) Restricted areas. When physical features require stairs steeper than those provided for by paragraph (b)(1) of this section, stairs at angles of 50° to

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75° from the horizontal may be used if they:

(i) Are capable of a single concentrated load of 200 pounds (890 N) at the tread centers;

(ii) Have open treads at least 4 inches (10.16 cm) in depth and 18 inches (45.72 cm) in width with a uniformly spaced vertical rise between treads of 6 to 9.5 inches (15.24 to 24.13 cm); and

(iii) Have handrails that meet the requirements of §1917.112(c)(1) on both sides and that are not less than 30 inches (76.2 cm) in height from the tread surface at the riser face.

(6) Maintenance. Fixed stairways shall be maintained in safe condition and shall not be obstructed.

[48 FR 30909, July 5, 1983, as amended at 65 FR 40942, June 30, 2000]

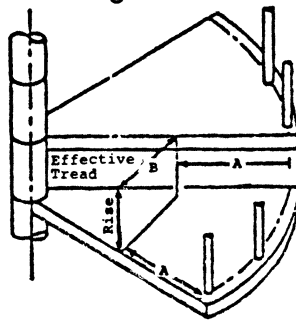
### § 1917.121 Spiral stairways.

(a) *Definition.* “Spiral stairway” means one with closed circular form, uniform sector-shaped treads and a supporting column.

(b) *Requirements.* Spiral stairways shall meet the following requirements:

(1) Stairways shall conform to the minimum dimensions of Figure F-1;

Figure F-1



SPIRAL STAIRWAY—MINIMUM DIMENSIONS

	A (half-tread width)	B
Normal use by employees.	11 inches (27.94 cm).	6 inches (15.24 cm).
Limited access .....	9 inches (22.86 cm).	5 inches (12.7 cm).

(2) Stairway risers shall be uniform and shall range from 6½ to 10½ inches (16.5 to 26.67 cm) in height;

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(3) Minimum loading capability shall be 100 pounds per square foot (4.79kN), and minimum tread center concentrated loading shall be 300 pounds (1334 N);

(4) Railings shall conform to the requirements of §1917.112(c)(1). If balusters are used, there shall be a minimum of one per tread. Handrails shall be a minimum of 1¼ inches (3.18 cm) in outside diameter; and

(5) Vertical clearance shall be at least 6 feet, 6 inches (1.98 m) above the top step.

(c) *Maintenance.* Spiral stairways shall be maintained in safe condition.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997; 65 FR 40942, June 30, 2000]

### § 1917.122 Employee exits.

(a) Employee exits shall be clearly marked.

(b) If an employee exit is not visible from employees’ work stations, directional signs indicating routes to the exit shall be posted.

(c) Exits shall be readily accessible and sufficient in number to provide employees with a convenient means of escape in emergencies. A clear passage to the exit shall be maintained.

(d) The minimum width of any employee exit shall be 28 inches (71.12 cm).

[48 FR 30909, July 5, 1983, as amended at 65 FR 40942, June 30, 2000]

### § 1917.123 Illumination.<sup>9</sup>

(a) Working and walking areas shall be illuminated. Unless conditions described in the regulations of the United States Coast Guard (33 CFR 126.15(1) and (n), and 33 CFR 154.570) exist in the case of specific operations, illumination in active work areas (for example, cargo transfer points) shall be of an average minimum light intensity of 5 foot-candles. The illumination in other work areas (for example, farm areas) shall be of an average minimum light intensity of 1 foot-candle except for security purposes when a minimum light intensity of ½ foot-candle shall be

<sup>9</sup>The United States Coast Guard, at 33 CFR 126.15(1) and (n), and 33 CFR 154.570 sets out requirements for illumination at “designated waterfront facilities” and “large oil transfer facilities.”